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H. L. G. Stroyan

On a Collection of Aphids from Inverness-shire, with the Description of a New Species

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TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

VOL. 18 DECEMBER 1969 PART X

On a Collection of Aphids from Inverness-shire, with the Description of a New Species

By H. L. G. Stroyan

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Introduction

The aphids listed in the following pages were collected during a survey of the insect fauna of Nature Reserves in the Speyside and Cairngorm area sponsored by the Nature Conservancy, to whom I am indebted for the financial support enabling me to participate.

Collecting was carried out during two periods: June 17-27, 1967, and July 18-25, 1968. During these periods a total of 108 identified species and subspecies of aphids was recorded, of which, however, only 22 were taken actually within the limits of Nature Reserves. This is mainly due to the fact that the Reserves for the most part have a somewhat limited flora, dominated by *Pinus, Betula, Calluna* and *Vaccinium* at the lower levels. The survey underlined the already known circumstance that areas dominated by human activity, with consequent enrichment of the flora by weeds of cultivated ground and other adventives, and encouragement of many herbs that are normally suppressed by the dominant species of the natural flora, are much better collecting grounds for aphids than areas of natural undisturbed plant cover. In the ensuing list, those species recorded from Reserves are indicated by an asterisk.

Two of the species collected on the survey—*Aphis uvaeursi* Ossiannilsson and *Sitobion scoticum,* sp. n.—are additions to the British aphid fauna, while a further seven are not recorded in the list of Scottish Aphididae published by Shaw (1964), in which only 31 species are shown as having been recorded from the vice-county of East Inverness with Nairn. The record of *Pterocomma tremulae* Börner is only the second published for Great Britain.

The species recorded are listed in alphabetical order, and when two species have the same name they appear in alphabetical order of their generic names. The following is a list of abbreviations of locality names: Av, Aviemore village; Cb, Carrbridge; Cg, Craigellachie Nature Reserve; Dell, Grounds of the Dell Hotel, Inverdruie; Db, Dorback; Df, Dalfaber road, Aviemore; GE, Glen Einich; GF, Glen Feshie; Gr, Granish; Kc, Kincraig; Kr, Kinrara; RF, Rothiemurchus Forest; Rv, Revack, near Nethy Bridge; T, Tulloch, near Boat of Garten.

Other localities are not abbreviated. All collections were made by myself unless otherwise indicated. The localities mentioned above and in the list all lie within the 10 km squares of the National Grid NH 80, 81 and 90, 91, with the following exceptions: Carrbridge and Sluggan Bridge (NH 82), Dorback (NJ 01) and Revack (NJ 02).

List of Species Collected

**abietinum* (Walker), *Elatobium*. *Picea abies*, Feshiebridge, 17.6.67; sweeping, Loch an Eilein, RF, 21.6.67; Allt na Beinne Mor, RF, 23.6.67.

achilleae Hille Ris Lambers, *Coloradoa*. *Achillea millefolium*, Dell, 24.7.68.

**achilleae* (Koch), *Dactynotus*. *Achillea millefolium*, Av, 27.6.67; Cg, 18.7.68.

aegopodii (Scopoli), *Cavariella*. *Aegopodium podagraria* and *Anthriscus sylvestris*, Dell, 23.6.67.

**agilis* (Kaltenbach), *Protolachnus*. *Pinus sylvestris*, GF, 17.6.67.

agrostidis (Muddathir) *Holcaphis*. Thrashed from mixed grasses on road verge, Df, 25.6.67.

**alni* (Degeer), *Pterocallis*. *Alnus glutinosa*, RF, 18.6.67.

annulatus (Hartig), *Tuberculoides*. *Quercus robur*, Dell, 19.6.67; vagrant on *Salix*, Polchar, 21.6.67; *Q. robur* or hybrid *robur* × *petraea*, Kc, 22.6.67; *Q. robur*, Cb, 22.6.67; *Q. robur* or hybrid, Kc, 23.7.68.

archangelicae (Scopoli), *Cavariella*. *Angelica sylvestris*, Dell, 20.6.67.

ascalonicus Doncaster, *Myzus*. *Campanula rotundifolia*, Av, 19.6.67; *Achillea millefolium*, Sluggan Bridge, 22.6.67.

avenae (Fabricius), *Macrosiphum* (*Sitobion*). Sweeping, Db, Rv, 19.7.68 (*G. E. Woodroffe* leg.).

basalis Stroyan, *Kallistaphis*. *Betula pubescens*, Rv, 19.7.68.

berberidis (Kaltenbach), *Liosomaphis*. *Berberis* sp., Loch an Eilein, RF, 22.7.68.

calthae (Koch), *Rhopalosiphoninus*. *Caltha palustris*, Gr, 19.6.67.

**campanulae* (Kaltenbach), *Dactynotus* (*Uromelan*). *Campanula rotundifolia*, Av, 19.6.67; beaten by roadside near Loch an Eilein, RF, 21.6.67; *C. rotundifolia*, Dell, 23.6.67; Cg, 18.7.68.

capreae (Mosley), *Chaitophorus*. *Salix* sp., Df, 25.6.67; Kr, 25.6.67 (*W. O. Steel* leg.).

cerasi (Fabricius), *Myzus*. *Prunus avium*, Rothiemurchus village, 21.6.67; Dell, 19.7.68.

cholodkovskyi Mordvilko, *Macrosiphum*. *Filipendula ulmaria*, Kr, 18.6.67; Kc, 22.6.67 (*G. E. Woodroffe* leg.); Df, 25.6.67; Swan's Chapel, Loch Insh, 23.7.68.

comes (Walker), *Clethrobius*. Swept among *Betula* and *Alnus* by stream, Loch an Eilein, RF, 21.6.67 (1 alate only).

**compositellae* (Theobald), *Nasonovia*. *Hieracium* sp., Cg, 20.6.67; Sluggan Bridge, 22.6.67; Df, 25.6.67 (1 vagrant also on *Crepis capillaris*).

coryli (Goeze), *Myzocallis*. *Corylus avellana*, Gr, 19.6.67.

costata (Zetterstedt), *Lachniella*. *Picea abies*, Feshie Bridge, 17.6.67; Dell, 21.6.67.

cyperi (Walker), *Trichocallis*. *Carex* sp., Kr, 18.6.67; Gr, 19.6.67; Db, 19.7.68; Loch an Eilein, RF, 22.7.68.

dirhodum (Walker), *Metopolophium*. *Rosa* sp., Kr, 18.6.67.

duponti Hille Ris Lambers, *Pleotrichophorus*. *Achillea millefolium*, Db, 25.6.67; road junction of B.970 with Boat of Garten road (O.S. grid ref. 952190), 25.6.67; Gr, 26.6.67; Df, 18.7.68 (no sample).

epilobiellum Theobald, *Macrosiphum*. *Epilobium montanum*, Dell, 21.7.68.

ericae (Börner), *Ericaphis*. *Erica tetralix*, Db, 19.7.68; Delbog, near Boat of Garten, 25.7.68.

euphorbiae (Thomas), *Macrosiphum*. *Aquilegia* sp., Av, 19.6.67

evansi (Theobald), *Microlophium*. *Urtica dioica*, Df, 25.6.67.

fabae Scopoli, *Aphis*. *Rumex crispus*, Dell, 27.6.67; *Philadelphus coronarius*, Dell, 20.7.68.

fagi (Linnaeus), *Phyllaphis*. *Fagus sylvatica*, Av, 19.6.67, 27.6.67.

**farinosa* Gmelin, *Aphis*. *Salix* sp., Cg, 18.7.68.

**festucae* (Theobald), *Metopolophium*. Swept at 3,000 ft, Sgoran Dubh, 17.6.67 (*G. E. Woodroffe* leg.); *Deschampsia caespitosa* and *Festuca rubra*, Dell, 18.6.67; mixed grass (including *Festuca*) beside stream, Loch an Eilein, RF, 21.6.67; beaten by roadside near Loch an Eilein, 21.6.67; beaten by roadside, Df, 25.6.67; on stunted *Festuca*, Db, 25.6.67; *Deschampsia flexuosa*, Gr, 26.6.67 (*E. C. Pelham-Clinton* leg.); *Agrostis tenuis*, Df, 18.7.68.

**formicaria* von Heyden, *Forda*. Grass roots under stone, RF, 18.6.67; Gr, 26.6.67.

fragariae (Walker), *Macrosiphum* (*Sitobion*). *Rosa* sp., Dell, 17.6.67; Kr, 18.6.67; Dell, 20.6.67; swept from *Glyceria* sp., Dell, 21.6.67; beaten from mixed grasses, Loch an Eilein, RF, 22.7.68; spikes of *Carex panicea*, RF, 22.7.68.

galeopsidis (Kaltenbach), *Cryptomyzus*. *Galeopsis tetrahit*, road between Aviemore and Rothiemurchus, 20.7.68.

geranii (Kaltenbach), *Acyrthosiphon malvae* (Mosley), subsp. *Geranium robertianum*, Loch an Eilein, RF, 22.7.68.

**glyceriae* (Kaltenbach), *Sipha*. Swept from grass and *Carex*, Gr, 19.6.67; floated off grass in bog, Cg, 20.6.67 (*W. O. Steel* leg.); swept beside stream, Loch an Eilein, RF, 21.6.67; swept from *Glyceria* sp., Dell, 21.6.67; swept from grass, Rv, 19.7.68.

helichrysi (Kaltenbach), *Brachycaudus*. *Achillea millefolium*, Av, 19.6.67; *Solidago virgaurea*, Sluggan Bridge, 22.6.67; *Rhinanthus spadiceus*, Gr, 25.7.68.

heraclei Börner, *Paramyzus*. *Heracleum sphondylium*, Df, 18.7.68.

hirsutissima (Börner), *Dysaphis*. *Anthriscus sylvestris*, Df, 18.7.68.

humilis (Walker), *Hyalopteroides*. *Dactylis glomerata*, Polchar, 21.6.67; Df, 18.7.68; vagrant alate under leaf of *Rubus idaeus*, near Feshie Bridge, 21.7.68.

hypochoeridis Hille Ris Lambers, *Dactynotus*. *Hypochoeris radicata*, Dell, 22.6.67; *Hieracium pilosella*, Dell, 27.6.67.

idaei van der Goot, *Aphis*. *Rubus idaeus*, Loch an Eilein, RF, 22.7.68; Gr, 25.7.68.

insertum (Walker), *Rhopalosiphum*. *Crataegus monogyna*, Dell, 19.6.67.

jaceae (Linnaeus), *Dactynotus* (*Uromelan*). *Centaurea nigra*, Dell, 18.6.67; swept in marsh, Kc, 22.6.67.

junackianum (Karsch), *Delphiniobium*. *Aconitum napellus*, Kc, 22.6.67.

juniperi (Degeer), *Cinara*. *Juniperus communis*, road between Rothiemurchus and Feshie Bridge, 17.6.67; Dell, 20.6.67. Listed by Shaw (1964) as *C. cupressobium* (Deg.) (lapsus).

konoi Takahashi, *Cavariella*. *Angelica sylvestris*, Dell, 20.6.67. Unrecorded from Scotland by Shaw (1964).

laricis (Walker), *Cinara*. *Larix decidua*, road from Polchar to Loch an Eilein, 24.7.68.

ligustri (Mosley), *Myzus*. *Ligustrum vulgare*, Av, 22.7.68.

millefolii (Degeer), *Macrosiphoniella*. *Achillea millefolium*, Av, 19.6.67, 27.6.67.

myricae (Kaltenbach), *Myzocallis*. *Myrica gale*, GF, 17.6.67; Cg, 18.7.68; Db, 19.7.68.

neglectus Krzywiec, *Tuberculoides*. *Quercus robur*, Dell, 19.6.67; *Q. robur* or hybrid *robur* × *petraea*, Kc, 22.6.67. Unrecorded from Scotland by Shaw (1964).

newskyi (Börner), *Dysaphis*. *Heracleum sphondylium*, Gr, 26.6.67, 22.7.68.

**oblongus* (von Heyden), *Symydobius*. *Betula pubescens*, GF, 17.6.67; Creag Fhiaclach, 24.7.68 (*G. E. Woodroffe* leg.).

**ossiannilssoni* Hille Ris Lambers, *Wahlgreniella*. *Arctostaphylos uva-ursi*, GF, 17.6.67; Am Beanaidh, GE, 24.6.67.

**padi* (Linnaeus) *Rhopalosiphum*. *Prunus padus*, road between Rothiemurchus and Feshie Bridge, 17.6.67; RF, 18.6.67; Kr, 18.6.67 (no sample); beaten from *Deschampsia* and *Festuca*, Dell, 18.6.67; swept from *Glyceria* sp., Dell, 21.6.67; beaten from marsh herbage including *Poa trivialis* and *Phalaris arundinacea*, Df, 25.6.67.

papillata Theobald, *Jacksonia*. *Poa* sp., etiolated shoots under stone, Loch an Eilein, RF, 26.6.67.

pastinacae (Linnaeus), *Cavariella*. *Heracleum sphondylium*, Kr, 18.6.67; Dell, 20.6.67.

pilosellae (Börner), *Nasonovia. Hieracium pilosella* and *H. aurantiacum,* Gr, 25.6.67, 26.6.67; Dell, 27.6.67; Swan's Chapel, Loch Insh, 23.7.68.

pilosum Buckton, *Pterocomma. Salix aurita,* Gr, 19.6.67.

**pinea* (Mordvilko), *Ginara. Pinus sylvestris,* Allt Ruadh, GF, 17.6.67; road between Rothiemurchus and Feshie Bridge, 17.6.67.

pineti (Fabricius), *Schizolachnus. Pinus sylvestris,* road between Rothiemurchus and Feshie Bridge, 17.6.67.

pini (Linnaeus), *Cinara. Pinus sylvestris,* as *S. pineti,* 17.6.67; Sluggan, 22.6.67; Dell, 22.7.68.

pini (Burmeister), *Prociphilus. Crataegus monogyna,* Av, 27.6.67, 18.7.68.

pisum (Harris), *Acyrthosiphon.* Beaten from herbage including *Lotus corniculatus,* road to Loch an Eilein, 21.6.67; *L. corniculatus* and *Lathyrus montanus,* Df, 25.6.67; *Vicia* sp., Df, 18.7.68; *L. corniculatus,* Kr, 23.7.68.

platanoidis (Schrank), *Drepanosiphum. Acer pseudoplatanus,* Dell, 18.6.67.

populeti (Panzer), *Chaitophorus. Populus tremula,* Gr, 25.7.68. Unrecorded from Scotland by Shaw (1964).

ptarmicae Hille Ris Lambers, *Macrosiphoniella. Achillea ptarmica,* Gr, 22.7.68.

punctipennis (Zetterstedt), *Euceraphis. Betula verrucosa,* Dell, 18.6.67.

purpurea Hille Ris Lambers, *Megourella. Lathyrus pratensis,* road between Aviemore and Rothiemurchus, 27.6.67.

quadrituberculata (Kaltenbach), *Betulaphis. Betula verrucosa,* Dell, 18.7.68.

ranunculi (Kaltenbach), *Dysaphis.* Empty galls on *Crataegus monogyna,* Av, 27.6.67, 18.7.68.

rhinanthi (Schouteden), *Hyperomyzus* (*Hyperomyzella*). *Rhinanthus spadiceus,* Kr, 23.7.68; Gr, 25.7.68.

ribisnigri (Mosley), *Nasonovia. Crepis paludosa,* Kc, 22.6.67; T, 22.6.67; *C. capillaris,* Df, 25.6.67; *Hieracium aurantiacum,* Gr, 26.6.67; *H. pilosella,* Cg, 18.7.68

riparius Stroyan, *Dactynotus* (*Uromelan*). *Crepis paludosa,* T, 22.6.67, 25.7.68.

rosae (L.), *Macrosiphum. Rosa* cultivar, Polchar, 21.6.67; *Succisa pratensis,* Kr, 23.7.68.

roszneri (Börner), *Subsaltusaphis. Carex* sp., probably *rostrata,* Gr, 19.6.67. Unrecorded from Scotland by Shaw (1964).

rubi (Kaltenbach), *Amphorophora. Rubus idaeus,* Dell, 27.6.67.

**rufum* Hille Ris Lambers, *Aulacorthum. Vaccinium myrtillus,* RF, 23.6.67; GE, 24.6.67; *V. uliginosum,* 2,000 ft., Allt Ruigh na Sroine, GE, 24.6.67.

rumexicolens (Patch), *Thuleaphis. Rumex acetosella,* Boat of Garten, 25.7.68.

scoticum Stroyan, sp. n., *Macrosiphum* (*Sitobion*). *Poa trivialis,* Loch an Eilein, RF, 21.6.67, 23.6.67, 22.7.68, 24.7.68. See description.

**sejuncta* (Walker), *Macrosiphoniella* (*Phalangomyzus*). *Achillea millefolium,* RF, 18.6.67; road to Loch an Eilein, 24.7.68 (immatures only).

serrulatus Haliday, *Atheroides.* Beaten from *Deschampsia caespitosa* and *Festuca rubra,* Dell, 18.6.67; mixed *Dactylis* and *Festuca,* Df, 25.6.67; beaten by roadside between Av and Rothiemurchus, 27.6.67.

similis van der Goot, *Capitophorus. Hippophae rhamnoides,* Dell, 18.6.67.

**solani* (Kaltenbach), *Aulacorthum. Alchemilla alpina,* Allt Ruigh na Sroine, GE, 24.6.67; beaten from herbage on roadside near Loch an Eilein, 24.7.68.

**sorbi* (Kaltenbach), *Dysaphis* (*Pomaphis*). *Sorbus aucuparia,* Allt Ruadh, GF, 17.6.67; at 1,700 ft., GF, 27.7.68 (*G. E. Woodroffe* leg.).

spartii (Koch), *Acyrthosiphon pisum* (Harris), subsp. *Sarothamnus scoparius,* Inshriach, 21.6.67 (*G. E. Woodroffe* leg.); Gr, 25.6.67.

tanacetaria (Kaltenbach), *Macrosiphoniella. Tanacetum vulgare,* Gr, 22.7.68.

taraxaci (Kaltenbach), *Dactynotus* (*Uromelan*). *Taraxacum officinale,* Gr, 26.6.67.

tenerum Hille Ris Lambers, *Metopolophium. Deschampsia flexuosa,* Kr, 23.7.68; Gr, 25.7.68 (no sample).

testudinaceus (Fernie), *Periphyllus. Acer pseudoplatanus,* Dell, 18.6.67.

tiliae (Linnaeus), *Eucallipterus. Tilia vulgaris,* Av, 27.6.67.

tormentillae Passerini, *Aphis. Potentilla erecta,* Gr, 25.7.68.

tremulae (Degeer), *Asiphum. Populus tremula,* Rv, 19.7.68 (empty leaf nests and nymphal exuviae only).

**tremulae* (Koch), *Chaitophorus. Populus tremula,* Rv, 19.7.68; Creag Fhiaclach, 24.7.68 (*G. E. Woodroffe* leg.).

tremulae Börner, *Pterocomma. Populus tremula,* Gr, 19.6.67. Unrecorded from Scotland by Shaw (1964); second British record.

tribulis (Walker), *Megourella. Vicia sepium,* Cb, 22.6.67.

**trirhodus* (Walker), *Longicaudus. Rosa* sp., Cg. 20.6.67; Dell, 20.6.67, 21.6.67, 18.7.68.

ulmi (Linnaeus), *Schizoneura. Ulmus glabra,* Dell, 20.6.67; Loch an Eilein, RF, 25.6.67, 22.7.68.

urticata Gmelin, *Aphis. Urtica dioica,* Dell, 26.6.67.

usquertensis Hille Ris Lambers, *Macrosiphoniella. Achillea millefolium,* road to Loch an Eilein, 24.7.68. Unrecorded from Scotland by Shaw (1964).

**uvaeursi* Ossiannilsson, *Aphis. Arctostaphylos uva-ursi,* Am Beanaidh, GE, 24.6.67; Gr, 26.6.67. New to British fauna. See descriptive notes.

**vaccinii* (Theobald), *Wahlgreniella. Vaccinium vitis-idaea,* Rothiemurchus, 21.6.67; Allt na Beinne Mor, RF, 23.6.67; Am Beanaidh, GE, 24.6.67; Delbog, near Boat of Garten, 25.7.68.

verrucosa (Gillette), *Allaphis.* Beaten from *Carex* spp., Gr, 19.6.67; Loch an Eilein, RF, 21.6.67, 23.6.67, 26.6.67, 22.7.68, 24.7.68; Db, 19.7.68.

viciae Buckton, *Megoura. Lathyrus pratensis,* Av, 27.6.67.

weberi Börner, *Macrosiphum. Succisa pratensis,* Gr. 22.7.68; RF, 22.7.68; road to Loch an Eilein, 24.7.68.

Species identified to genus only:

Anoecia sp. Dell, 27.6.67 (1 alate only, specimen not secured).

Macrosiphum sp. *Capsella bursa-pastoris,* Gr, 25.7.68. Probably a large form of *M. euphorbiae* (Thomas).

Paraschizaphis sp. Beaten from *Carex* sp., Gr, 19.6.67 (probably *P. caricis* (Schouteden), but specimen not secured).

Subsaltusaphis sp. Beaten from bog herbage including *Carex nigra, C. echinata, C ?hostiana* and *C. ?panicea,* Loch an Eilein, RF, 24.7.68 (1 immature only, characters perhaps consistent with those of *S. paniceae* (Quednau), but exact determination not possible).

Notes on Individual Species

1. *Tuberculoides neglectus* Krzywiec, 1965

First described by Krzywiec (1965) from material taken in Poland on *Quercus petraea* and, more rarely, on *Q. robur.* It is very closely related to *T. annulatus* (Hartig), with which it may live in mixed populations; according to Krzywiec 'it mainly differs in the structure of the processus terminalis, in the total length of the antennae and in the length of the siphunculi in all morphes. The first instar larva is easily distinguished by the long marginal hairs'. British material identified as *neglectus* up to the present time (1968) is mostly from Scotland, but it seems certain that the species will prove to be widely distributed in areas where *Quercus petraea* is common. In such areas it can evidently live well on trees that are morphologically *Quercus robur,* but it is not known whether such trees may be part of hybrid swarm populations with some admixture of *Quercus petraea* genes. I have not so far seen *neglectus* from any locality where *Quercus robur* is the only native oak present. In the Rothiemurchus area the species would seem to be rare, in accordance with the general dominance of *robur* over *petraea* oakwoods in the bottom-lands of the Spey valley. In the almost pure *petraea* oakwoods of Glen Trool, Kirkcudbrightshire, *T. neglectus* is the dominant *Tuberculoides,* although *T. annulatus* occurs locally in small numbers. I have also material from Ross and Cromarty and from Bedfordshire.

The most reliable character for separating alatae of the two species of *Tuberculoides* appears to be the presence in the body

cavity of embryones with long (*neglectus*) or short (*annulatus*) marginal hairs on the abdominal segments. As a quick method of evaluating this character it is useful to examine the hair on abdominal tergite 5, which is inserted just in front of the siphunculus. This hair in the embryones of *T. neglectus* ranges in length from 34μ to 46μ, and is clearly longer than the diameter of the siphunculus: in *T. annulatus* the same hair ranges from 12μ to 15μ in length, and is clearly shorter than the diameter of the siphunculus. In specimens without contained embryones the determination is more difficult, but the following characters are useful: (1) In *T. neglectus* the greatest length of siphunculus (measured in the perpendicular line from the insertion on the body to the posterior angle of the apex) varies from 0·07 to 0·10 mm., while in *T. annulatus* this length varies from 0·04 to 0·07 mm.; (2) the dorsal abdominal tubercles in *T. neglectus* tend to be of rather even size, are apparently never pigmented, and may occur on the first four abdominal tergites, while in *T. annulatus* the fourth pair is apparently absent, there is a strong tendency for that on the third tergite to be the largest pair, and this pair is frequently slightly dusky; (3) the processus terminalis in *T. neglectus* is 1·03-1·48 (mean 1·23) times as long as the basal part of VI, while in *T. annulatus* the range of variation is from 0·87 to 1·06 (mean 0·96) times as long as the base of VI, and the overlap zone between the species includes only about 18 per cent. of the specimens examined. The marked difference in hair length between the immature morphs of the two species does not extend to the adult alatae, but there is a rather slight difference in the maximal length of the dorsal hairs on the 7th abdominal tergite (15-25μ in *neglectus,* 11-17μ in *annulatus*).

All the immature stadia of *T. neglectus* are easily distinguished by the long capitate lateral hairs, as figured by Krzywiec (*loc. cit.*) for the first instar. The colour in life is similar to that of the pale greenish yellow forms of *T. annulatus;* leaden grey forms, which are common in late summer in *annulatus,* have not so far been recorded for *T. neglectus.*

Measurements of specimens: (1) al.viv.♀, *Quercus robur,* Inverdruie, 19.vi.67. Body 2·81, antennal flagellum 2·31, flagellar joint ratios 140 : 88 : 75 : 36 + 40, secondary rhinaria on III 6 & 4, siphunculus 0·09, cauda 0·18, caudal hairs 20, apical rostral segment 0·117 with 11 subsidiary hairs, second joint of hind tarsus 0·136. (2) *Quercus petraea*, Loch Trool, 7.ix.67. Body 1·69, antennal flagellum 1·84, flagellar joint ratios 103 : 64 : 57 : 35 + 42, secondary rhinaria on III 6 & 5, siphunculus 0·08, cauda 0·10, caudal hairs 13, apical rostral segment 0·77 with 7 subsidiary hairs, second joint of hind tarsus 0·103. All above length measurements in millimetres.

Abroad the species is recorded from Poland, Germany, Norway and the Netherlands.

2. *Subsaltusaphis roszneri* (C. Börner, 1940).

First described as *Saltusaphis roszneri* by Börner (1940), with the following brief diagnosis: 'Like the foregoing (*S. cinerea,* sp.n), dorsum with only stellate hairs, dorsal lines mostly pale or indistinct ('verwaschen'). Ochreous yellow. Up to $2\frac{3}{4}$ mm. On *Carex vesicaria'*. The reference to *S. cinerea* would imply the following additional characters: dorsal cuticular spinulosity fine as in *S. ornata* Theobald; antennae half body length, joint VI almost as long as III; marginal hairs present from abdominal tergite 8 forward to 6, or sometimes 5 or 4. Börner later (1952) placed *roszneri* as a synonym of *S. picta* Hille Ris Lambers, but rescinded this on a subsequent page of the same work, quoting Quednau in a personal communication. According to this and to Quednau (1954), *roszneri* is distinguished from *picta* in the adult by the density of the dorsal spinulosity, which in *picta* becomes sparser in the pleural region, and in the first instar by the form of the spinal hairs, which in *roszneri* are irregularly broadened at the apex, but in all other species are stellate or 'schirmchen-förmig'. Quednau also gives as host for *roszneri* only *Carex rostrata;* Ossiannilsson (1959) also records the species mainly from this host in Sweden, but adds a record from *Carex elata.*

The present generic placing of *roszneri* and related species that were originally placed in *Saltusaphis* is due to the researches of Quednau (1954), who established that *Saltusaphis scirpus* Theobald, the type-species of *Saltusaphis,* is a saltatorial species with enlarged tibial bases on the front and middle legs, and belonging properly to the same tribe as *Iziphya* Nevsky. Quednau gave the generic name *Bacillaphis* to the species formerly placed in *Saltusaphis* Theobald by European authors. However, he had earlier (1953) erected the genus *Subsaltusaphis* for *Saltusaphis intermedia* Hille Ris Lambers, in which the first instar has the dorsal hairs all acute, but the adult apterae bear a mixture of acute and stellate hairs. This character does not seem to be of sufficient importance to confer separate generic status on *S. intermedia,* and I therefore use *Subsaltusaphis* to replace *Bacillaphis* on grounds of priority. The diagnosis of Quednau (1954), quoted above, must therefore be modified to contrast the dorsal hair type of the first instar in *roszneri* with (a) the acute type found in *S. intermedia* and (b) the stellate type found in the remaining species.

Eastop (1956) recorded *S. roszneri* as British on the strength of records from Merioneth and Cumberland respectively. Through an oversight these records were not included in compilations of additions to the British aphid fauna by Stroyan (1957, 1964), and *S. roszneri* was not included in the second edition of the 'Check List of British Insects' by Kloet & Hincks (1964). The apterous vivipara swept at Granish appears to be the first published record of *S. roszneri* from Scotland.

3. *Pterocomma tremulae* C. Börner, 1940.

This species was added to the British list by Stroyan (1955) on the basis of material taken in Surrey, which was described as differing in one or two particulars from Börner's description of the type material. Szelegiewicz (1967) erected a new subspecies *stroyani* based partly on a single slide of the Surrey material sent to him by me, and partly on four Dutch specimens sent to him by Dr. Hille Ris Lambers. The diagnostic characters of the new subspecies were given as: antennal joint III with 4-20 secondary rhinaria (24-46 in typical subspecies); IV without secondary rhinaria (0-5, mean 1.8, in typical subspecies); apical rostral segment with 11-16 subsidiary hairs (11-12 in typical subspecies); and antennal joint IV shorter than V (longer in typical subspecies); all these characters refer to apterous viviparae.

When the aphids collected at Granish are considered together with the earlier record from Southern England, the necessity for a subspecies based on the latter appears to be very dubious. The Scottish aphids bear 32-44 secondary rhinaria on antennal joint III, 0-5 on IV, have 11-14 subsidiary hairs on the apical rostral segment, and antennal joint IV ranges from 0·96 to 1·12 times as long as V, in the apterae. Re-examination of the Surrey apterae shows that they also have IV from slightly shorter to slightly longer than V. When seasonal (June versus September) and latitudinal (Surrey versus Inverness-shire) differences are taken into account, I do not believe that the two British samples belong to different subspecies; and since the Scottish sample agrees very accurately with the figures quoted by Szelegiewicz for typical *tremulae,* I regard *P. t. stroyani* as a synonym of *P. tremulae* Börner.

4. *Aphis uvaeursi* Ossiannilsson, 1959.

Described from *Arctostaphylos uva-ursi* in Sweden by Ossiannilsson (1959), with the following diagnosis: 'By the stout siphunculi this species is apparently related to *Aphis craccae* L. and to *A. astragali* sp.n., differing from both by the host plant, from *craccae* also by the short, stump body hairs and the short second joint of hind tarsus, from *astragali* by the stronger dorsal abdominal sclerotization'.

The small colony found in Glen Einich in 1967 contained two adult apterae that are apparently fundatrices. Much larger colonies were found two days later at Granish from which many apterous and a late viviparae were taken. I append some notes on these morphs and on the hitherto undescribed fundatrices.

Fundatrix. Body length 1·9-2·0 mm., shape plump oval. Antennae 5-jointed, without secondary rhinaria; flagellar joints (III-V) together about two-fifths of body length; processus terminalis about half as long as joint III, and 1·2-1·3 times basal part of joint V. Abdominal and thoracic dorsum mostly membranous, but with solid transverse bands across abdominal tergites 7 and 8, and with some irregular broken-up spinal sclerites

on the anterior abdominal tergites, which on tergite 6 may approach the condition of a solid band between the siphuncular bases. Marginal tubercles present on all thoracic segments and on abdominal segments 1-4 and 7. Siphunculi and cauda relatively thicker, and legs relatively slightly shorter, than in the apterae of the ensuing generation. Other characters very much as for the later apterae.

Measurements of one specimen: Body 1·90 mm., antennal joint III 0·32, IV 0·15, V 0·12 + 0·15, siphunculus 0·13, cauda 0·18, caudal hairs (number) 15, apical rostral segment 0·123, second joint of hind tarsus 0·100, longest hair on ant. III 18μ, basal articular diameter of ant. III 25μ, longest hair on abdominal tergite 3 26μ.

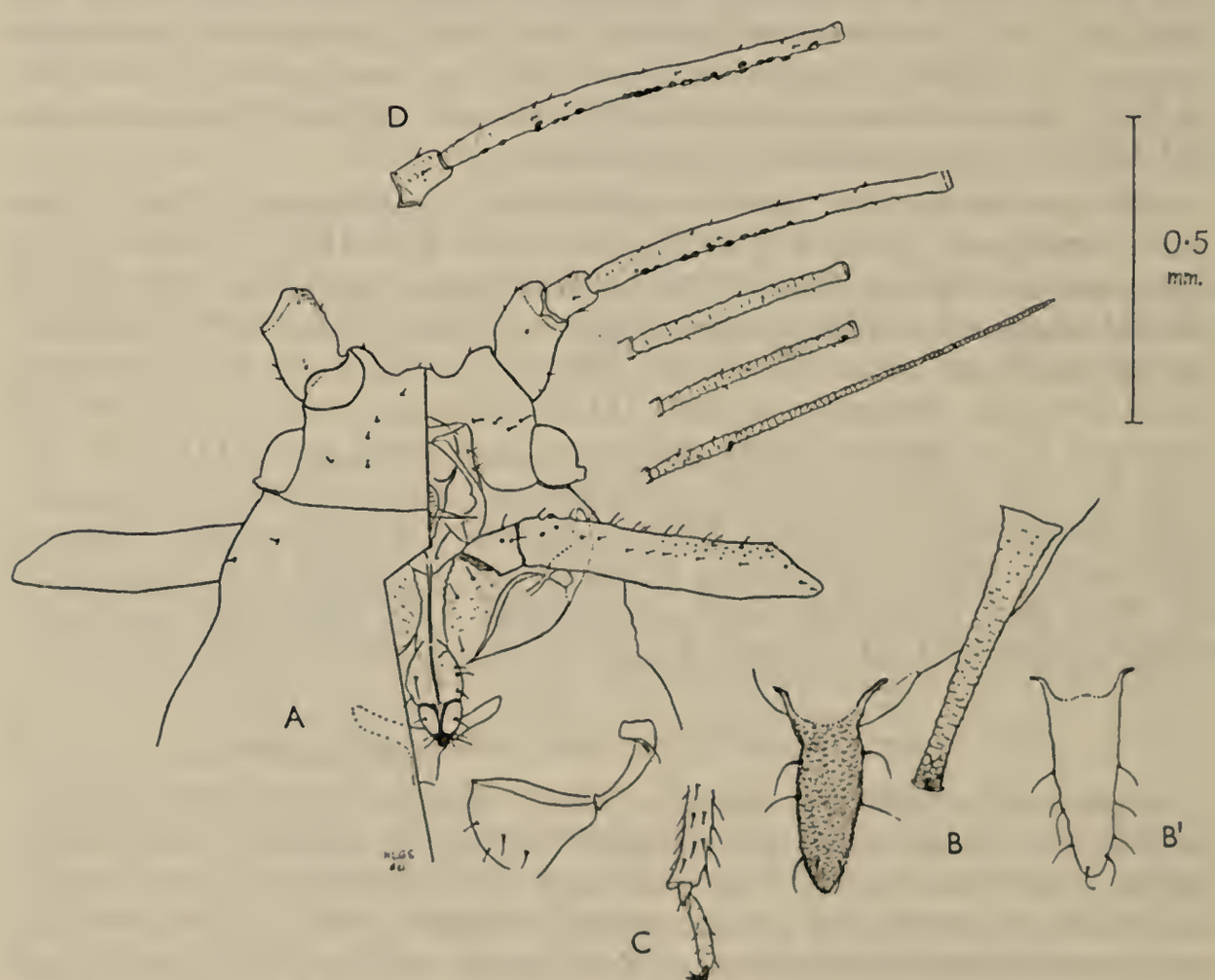
Apterous and alate viviparous females. Agreeing well with the original description, except as follows: both morphs slightly larger (1·6-1·9 mm. against 1·3-1·6 mm. long); alatae with slightly fewer secondary rhinaria on ant. III (9-13 against 13-17); caudal hair number slightly higher (10-13 against 9-10); marginal tubercles variably and irregularly present in many specimens on one or more of the abdominal segments from 2 to 5 inclusive; processus terminalis slightly shorter relative to the basal part of ant. VI (1·8-2·1 times as long against 2·0-2·7 times). These differences are not held to be taxonomically significant.

Measurements of single specimens: (Apterous) Body 1·85 mm., antennal joint III 0·33, IV 0·18, V 0·18, VI 0·12 + 0·19, siphunculus 0·19, cauda 0·20, caudal hairs (number) 11, apical rostral segment 0·118, second joint of hind tarsus 0·097, secondary rhinaria on ant. III 10 and 11, longest hair on ant. III 17μ, basal articular diameter of ant. III 25μ, longest hair on abdominal tergite 3 21μ. (Alate) Body 1·87 mm., antennal joint III 0·27, IV 0·18, V 0·17, VI 0·11 + 0·19, siphunculus 0·15, cauda 0·17, caudal hairs (number) 13, apical rostral segment 0·118, second joint of hind tarsus 0·089, secondary rhinaria on antennal III 10 and 12, on IV 2 and 1, longest hair on ant. III 15μ, basal articular diameter of ant. III 21μ, longest hair on abdominal tergite 3 22μ.

5. *Macrosiphum* (*Sitobion*) **scoticum, sp.n.**

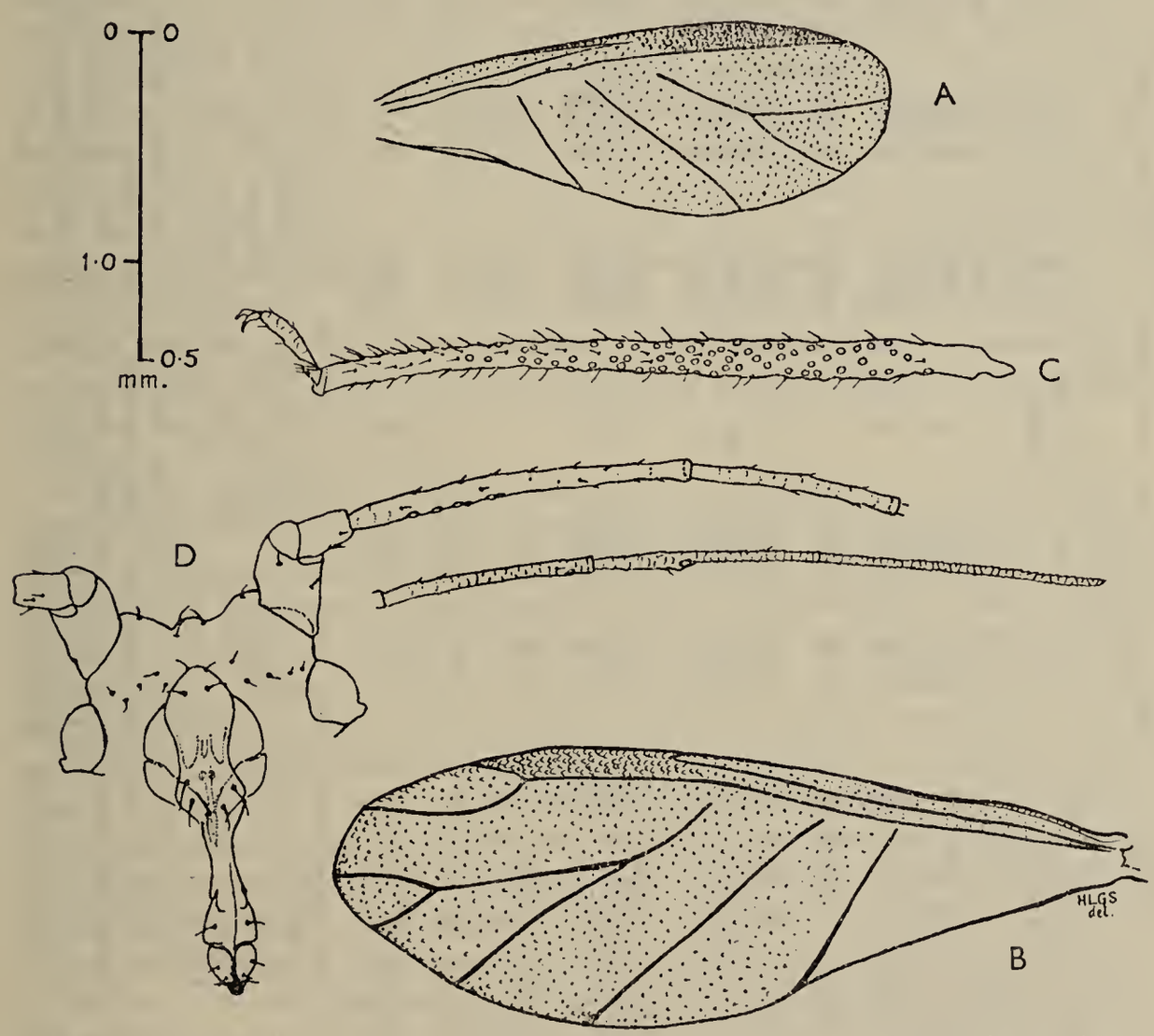
Apterous viviparous female. Body elongate oval, 2·3-3·0 mm. in length. Frons with a shallow W-shaped outline, the lateral prominences 2 or more times as high as the median prominence, and without scabrosity or spinulosity. Frontal hairs in macerated specimens bluntly spear-shaped at apex, 10-25μ long. Antennae darkening progressively from pale dusky at base to blackish over the distal half of joint V and the whole of VI; joint I internally rough over apical two-thirds; imbrication very light over joint III, progressively stronger on remaining joints apicad. Flagellar joints totalling 2·0-2·3 mm. in length; processus terminalis 3·2-3·9 times as long as basal part of joint VI, and about 0·8-1·0 times as long as joint III; joints IV and V about equal, and from a

little more than half to a little more than 0·6 times joint III. Secondary rhinaria variable in size, double-contoured, irregularly arranged in partially double or triple rank along a variable part of the proximal two-thirds of joint III, and 8-17 in number. Antennal hairs similar in structure to frontal hairs; those on joint III maximally 10-15μ long, or from just over one-quarter to rather more than one-third of the basal articular diameter of the joint. Rostrum very short, not reaching middle coxae, its apical segment cordiform, not or scarcely longer than its maximum width, typically with a single pair of subsidiary hairs in addition to the small basal pair and the three constant apical pairs; the whole segment 0·07-0·09 mm. long, or about two-thirds as long as second joint of hind tarsus measured without claws and their articular sclerites. Dorsal body cuticle entirely pale, variably rugose but not appreciably sclerotic; intersegmental muscle sclerites only slightly darker than surrounding cuticle. Dorsal abdominal hairs blunt, those on tergite 3 maximally 6-10μ long, those on tergite 8 maximally 11-20μ long and normally 4 in



TEXT-FIGURE 1—*Macrosiphum* (*Sitobion*) *scoticum*, sp. n. Apterous viviparous female: A. head, thorax and antenna (dorsal detail to left, ventral details to right of mid-line); B, B′, siphunculus and two variants of cauda (B′ without cuticular sculpture detail); C, hind tarsus. Alate viviparous female: D, antennal joint III. All from microprojector outlines of cleared specimens. A, B. C based on holotype; D based on paratype. Cuticular sculpture only approximately represented

number. Siphunculi palish sclerotic, tapering, with the extreme apex darker; usually with a slight outward curvature of the apical one-eighth; imbrication on dorsal surface becoming progressively stronger from base towards apex; apical one-eighth with only 3-4 rows of very imperfectly formed reticulate cells before the very small apical flange; length between one-sixth and one-fifth of body length. Cauda elongate tongue-shaped, with or without a constriction at some point in its basal one-third, and consequently somewhat variable in shape (see figs. 1B, B[1]); concolorous with basal part of siphunculi, and about two-thirds as long as siphunculi; with 7-10 normal, acute hairs. Mesothoracic furca pedunculate. Legs palish sclerotic, tibiae slightly dusky at apex, but here still very distinctly paler than tarsi; femora ventroapically scabrous. Dorsal hairs on femora and proximal three-fifths of tibiae short and blunt, not longer than frontal hairs; those at tibiae bluntish or with spear-shaped apices, those towards apex of hind tibiae slightly shorter than least



TEXT-FIGURE 2—*M.* (*S.*) *scoticum*, sp. n. Alate male: A, fore wing. Alate viviparous female: B, fore wing. Oviparous female: C. hind tibia and tarsus; D. head, rostrum and antenna (ventral view). All from microprojector outlines of cleared specimens. A and B to left-hand, C and D to right-hand scale. A from allotype, B-D from morphotype specimens. Cuticular sculpture only approximately represented.

TABLE 1. Biometric data for specimens of *Macrosiphum* (*Sitobion*) *scoticum* sp.n.

Body	Antennal flagellum	Flagellar joint ratios (III-VI incl.)	Siph.	Cauda	Caudal hairs	Ap. seg. rost.	H. tars. II	Secondary rhinaria III	IV	V	Hair length maxima III/a.d.	3T	8T	Morph
2·57	2·02	100:60:56:26+90	0·48	0·33	7	0·084	0·130	9/10	0/0	0/0	14μ/38μ	9μ	14μ	Apt. (H)
2·68	2·11	109:57:58:28+94	0·52	0·37	8	0·084	0·139	11/12	0/0	0/0	14μ/38μ	7μ	15μ	,,
2·70	2·18	109:62:64:27+95	0·51	0·35	9	0·084	0·128	12/12	0/0	0/0	14μ/39μ	10μ	16μ	,,
2·49	2·12	108:58:60:26+96	0·47	0·34	9	0·079	0·118	17/13	–/0	–/0	11μ/36μ	10μ	15μ	,,
2·74	1·57	92:32:46:26+62	0·46	0·31	7	0·074	0·128	6/7	0/0	0/0	9μ/38μ	6μ	15μ	Fund.?
2·71	2·66	126:89:75:32+115	0·46	0·30	8	0·086	0·138	33/35	0/0	0/0	12μ/34μ	14μ	25μ	Al (M)
2·40	2·43	116:71:67:29+115	0·38	0·28	10	0·084	0·126	25/22	0/0	0/0	14μ/33μ	10μ	25μ	,,
2·30	2·18	110:67:63:28+90	0·38	0·29	5	0·089	0·131	30/24	0/0	0/0	12μ/34μ	8μ	16μ	,,
2·02	2·73	114:89:84:29+131	0·33	0·17	8	0·080	0·123	43/44	0/0	10/11	17μ/33μ	20μ	30μ	Male (A)
1·87	2·63	114:81:80:29+127	0·32	0·19	9	0·079	0·123	43/41	1/0	11/11	17μ/31μ	18μ	32μ	,,
1·92	2·54	115:75:79:27+121	0·30	0·16	7	0·074	0·122	36/43	1/0	7/10	16μ/31μ	18μ	41μ	,,
2·21	1·95	88:52:53:25+102	0·44	0·28	9	0·082	0·121	6/7	0/0	0/0	15μ/34μ	9μ(2T)	14μ	Ovip. (M)
2·34	2·04	94:60:58:27+96	0·46	0·30	10	0·079	c.0·12	12/11	0/0	0/0	15μ/36μ	9μ	18μ	,,
2·29	2·01	94:54:57:26+98	0·44	0·27	12	0·079	0·118	14/13	0/0	0/0	15μ/37μ	9μ	14μ	,,

All specimens from *Poa trivialis*, Loch an Eilein, Inverness-shire, and derived cultures on *P. trivialis*; dates as follows: Apterae 1-2, June 21-26, 1967; 3-4, July 22, 1968; Fundatrix (?), June 21-26, 1967; Alatae, 1, July 24, 1968, 2, August 15, 1968, 3, June 21-26, 1967; all sexual morphs September 11, 1968. Specimens marked (H), (M) and (A) are the holotype, morphotypes and allotype respectively; the remainder are paratypes.

Abbreviations: *Siph.*, siphunculus length; *ap. seg. rost.*, apical segment of rostrum, length; *H. tars. II*, second joint of hind tarsus, length; Hair length maxima on *III/a.d.*, on third antennal joint/basal articular diameter of joint; *3T*, on third abdominal tergite (*2T*, on second a.t.); *8T*, on eighth abdominal tergite. All length measurements are in millimetres except where microns are indicated.

thickness of tibia. Posterior hair on hind trochanter acute, about half as long as diameter of trochantrofemoral suture. First joints of all tarsi normally with 3 hairs, the two lateral ones longer than the median sense-peg; exceptionally one lateral hair may be either duplicated or absent. Ventral body hairs acute or subacute, in a double to triple row across each sternite, the longest hairs on the anterior abdominal sternites about 30μ long. Subgenital plate with 2-5 long (30μ), and occasionally 1-2 shorter hairs, on the anterior half, and 8-15 hairs around the posterior margin.

Colour in life dull apple green, legs, siphunculi and cauda pale brownish, antennae appearing mostly black.

Two specimens collected in June 1967 differ from the remainder in such a way as to suggest that they belong to the preceding generation, which at the latitude of the type locality is probably the *fundatrix*. They differ as follows: lateral frontal prominences without hairs (these prominences bear 1-2 hairs on each side in the later apterae). Antennal flagellum only about three-fifths of body length; processus terminalis 2·1-2·4 times as long as basal part of joint VI, and 0·6-0·7 times joint III. Secondary rhinaria on joint III 6-9 in number, confined to basal half of joint. Siphunculi and cauda a little more slender than in the later generations, the latter with no clear constriction and fairly evenly tapering. Legs relatively shorter, hind femur less than one-quarter, hind tibia much less than one-half, of body length, while in the later apterae the hind femur is more than one-quarter and the hind tibia slightly less to slightly more than half as long as the body.

Alate viviparous female. Similar to apterae in most morphological characters. Median frontal hairs up to 26μ long. Vertex, mesonotum, mesosternum, apices of femora dorsally, and apices of tibiae, all more or less equally dusky pigmented; tarsi rather darker, remainder of legs, head and thoracic capsule rather paler. Secondary rhinaria along whole length of antennal joint III, somewhat larger and more perfectly formed than in apterae, 19-36 in number, in an irregular double to triple series along posterior face of joint. Abdominal sclerotic pattern confined to the dusky intersegmental muscle sclerites, dusky centres to the marginal sclerites on abdominal tergites 2 to 4 inclusive, pale ill-defined postsiphunculars, and equally pale lateral sclerites extending inwards from the spiracles on abdominal segment 7. Marginal sclerites on abdominal tergites 2-4 sometimes with rather inconspicuous flat to slightly convex marginal tubercles about twice the diameter of a hair base, and pronotum also with such tubercles laterally. Siphunculi tapering over proximal five-sixths, thereafter expanding a little to apex in typical *Sitobion* fashion; reticulation hardly more developed than in apterae. Cauda tapering over basal two-fifths, thereafter more or less parallel-

sided to about seven-tenths, and then tapering to the rounded apex; with 5-10 hairs.

Colour in life green with dark brown head, thoracic lobes, antennae and siphunculi; legs pale brown with darker tarsi.

Male. Alate, but all specimens seen, which were reared in culture at 12-hour constant photoperiod and 15° C., have more or less narrowed forewings in which Rs is either absent or vestigial, and M is either simple or once-branched, or quite exceptionally with a small second fork in one wing (alate viviparae reared under the same conditions have normal wings with full venation). Body 1·7-2·0 mm. long. Antennal flagellar joints together considerably longer than body (about 1·3-1·4 times); entirely dark except extreme base of III; processus terminalis 4·2-5·0 times as long as basal part of VI, or from just longer than to 1·3 times as long as III. Secondary rhinaria on III 36-44, on IV 0-2 but usually 0, on V 7-11 in a single row along joint. Antennal hairs slightly longer than in alate vivipara, those on III maximally 16-18μ long, or slightly more than half as long as basal articular diameter of III. Dorsal abdominal hairs on tergite 3 maximally 15-20μ, on tergite 8 maximally (25?) 30-41μ long; those on tergite 8 3-4 in number. Abdominal and crural pigmentation somewhat darker than in alate vivipara, apices of tibiae as dark as tarsi. General morphology otherwise very similar to that of alate vivipara.

Colour in life reddish to grey-green, nymphs reddish.

Oviparous female. Very similar to apterous viviparous female. Body 2·1-2·4 mm. long. Antennal flagellar joints together a little shorter than body, processus terminalis 3·5-4·1 times as long as basal part of VI, or from just shorter than III to 1·2 times as long. Secondary rhinaria on III 6-14 in number, arranged as in viviparae. Siphunculi with only 1-2 rows of cells at apex. Cauda with 9-12 hairs. Eighth abdominal tergite with 4-6 hairs. Subgenital plate with 7-11 hairs on anterior half and 18-23 around posterior margin. Hind tibiae slightly incrassate, about 18-20 times as long as their greatest width, with about 100-170 pseudosensoria distributed over nearly their whole length. Otherwise as for apterous vivipara.

Colour in life as for apterous vivipara.

Biology. The species lives on *Poa trivialis,* and in the type locality was taken from a smooth-sheathed ecotype of this grass growing in a patch of damp, boggy vegetation bordering a small stream draining the northern angle of Loch an Eilein. The aphids were most abundant on tufts of *Poa* growing round a fallen birch trunk, from beneath which many of the culms sprang. The area in which they occurred was very circumscribed, not more than about ten yards square, and efforts to find the species in other similar spots with the same plant association failed. When sitting in the inflorescences the aphids have a highly

cryptic resemblance to the green spikelets, so that in fact only about three aphids were found by searching, the rest being obtained by beating the grass over a board. In culture the aphids lived indiscriminately on the leaf-blades (upper surface) and in the inflorescences. Sexuales produced by short day conditions at 12-15° C. made their appearance at the beginning of September, five weeks after transference to the short day regime. Alatae began to appear in the field about the end of June (1967), and were frequent among collections made between July 22 and 24 (1968).

Taxonomy. Holman (1961) has given a key to the then described European *Sitobion* species. In this key *S. scoticum* will come out in the same group with the other two grass-feeding species, *S. avenae* (F.) and *S. fragariae* (Wlk.). The siphunculus/cauda length ratio in apterae overlaps with that of *S. avenae,* but lies quite outside the values found in *S. fragariae.* However, *S. scoticum* differs from grass material of both species in the very reduced apical reticulation of the pale siphunculi. Such a reduction, coupled with pale siphunculi, does occur in material of *S. fragariae* from Rosaceae, but here the siphunculi are more than twice as long as cauda, antennal joint III bears not more than four secondary rhinaria, the apical rostral segment is about twice as long as its greatest width, and the tibial apices are concolorous with the tarsi. Other characters separating *S. scoticum* from *S. avenae* and *S. fragariae* on Gramineae are the entire lack of dorsal pigmentation apart from very pale muscle sclerites; the very short rostrum with its extremely compressed and squat apical segment bearing typically only 2 subsidiary hairs; the rather large number of secondary rhinaria; and the very short hairs on the body and appendages.

Sitobion equiseti Holman is described as having the siphuncular reticulation sometimes absent; but in this species the processus terminalis is more than 1·5 times as long as antennal joint III, which bears not more than four secondary rhinaria; the ventral surface of the head is spinulose; and the eighth abdominal tergite bears 7-8 hairs (Holman, 1961).

Sitobion dryopteridis (Holman), which has siphunculi with only slight and rudimentary reticulation, is distinguished from *S. scoticum* by the fact that the rostrum extends back to behind the middle coxae, and its apical segment is of normal proportions (about twice as long as its basal width), with three pairs of subsidiary hairs; while apterae have only 1-5 secondary rhinaria on antennal joint III (Holman, 1959, 1961).

A rather considerable number of *Sitobion* species have been described in recent years from Africa (Hille Ris Lambers, 1954; Doncaster and Hille Ris Lambers, 1956; Eastop, 1955, 1959; F. P. Müller, 1959), Madagascar (Remaudière, 1957), India (Kanakaraj David, 1956; Basu, 1964), Japan (Takahashi, 1964). Canada (W. R. Richards, 1963; Robinson, 1965) and the United

States (Hille Ris Lambers, 1966a). As far as I have been able to determine from published descriptions, no extra-European species exhibits the combination of siphuncular, rostral, pigmentary and rhinarial characters detailed above for *S. scoticum,* together with the additional character of uniform caudal hair type.

Metopolophium graminearum Mordvilko was described in 1919 from a few sexuales taken on an unidentified grass in a wood near Petrograd (Leningrad). Hille Ris Lambers (1966b) published some notes on the type of material now surviving in Leningrad, and pointed out that the species did not fit into the European concept of *Metopolophium.* Later, in personal discussion, he suggested to me that *S. scoticum* (then known only from viviparae) came very near *M. graminearum,* and might even be identical. Subsequent comparison of sexuales of *S. scoticum* with Mordvilko's description and Hille Ris Lambers' notes suggests that the two species can be separated by the following characters:

Morph	Character	*graminearum*	*scoticum*
Male	Body length (mm)	2·15-2·35	1·74-2·02
	Colour	Greenish yellow	Reddish to grey-green
	Proc. term. / Base of VI	6·9	4·2-5·0
	Sec. rhin./III	30-37	36-44
	do. /IV	8-9	0-2
	Segmental spinal bars on abdomen	Present	Absent
Ovipara	Body length (mm)	3·60-3·80	2·13-2·34
	Colour	Greenish yellow	Green
	Proc. term. / Base of VI	6·2-6·4	3·5-4·1
	Ant. IV / Base of VI	3·3-3·7	1·9-2·3
	Sec. rhin./III	1-3	6-14

Some of the tabulated differences may be correlated with the very considerable size difference between the two species, but this size difference is itself apparently highly significant, and suggests that the host of *graminearum* was probably a larger grass than *Poa trivalis,* on which latter a greenish yellow aphid more than 3½ mm. long would not enjoy the cryptic advantages possessed by *S. scoticum.* Also, the rhinarial numbers of the two species cannot be reconciled with the size differential, since the smaller species has the higher number of antennal III. I therefore believe that the two species, while probably closely related, are not identical. It is no longer possible to obtain the loan of types from the Zoological Institute in Leningrad where Mordvilko's material is housed. Sexuales of *S. scoticum* have

been sent to Leningrad for comparison with the types of *M. graminearum*.

Type material. All material collected and bred from *Poa trivialis,* Loch an Eilein, Rothiemurchus Forest, Inverness-shire. The O.S. grid reference of the type locality is 897087, in 10 km. square NH 80. Holotype: Apterous viviparous female, sample Av/76, June 23, 1967; Allotype: Alate male, sample 5530, September 11, 1968; Morphotypes: Alate viviparous female, sample Av/182, July 24, 1968; oviparous female, same data as Allotype; Paratypes: 35 apterous and 31 alate viviparous females, seven alate males and 35 oviparous females, various dates between June 21, 1967, and September 11, 1968. Paratypes deposited in the collection of the British Museum (Natural History), the Institute of Zoology, Academy of Sciences of the U.S.S.R., Leningrad, l'Institut Pasteur, Paris, and Dr. D. Hille Ris Lambers, Bennekom, Netherlands. The remainder of the type material is in the collection of the Plant Pathology Laboratory, Harpenden.

References

Basu, A. N., 1964. New genera and species of aphids from the Darjeeling district, India. *J. Linn. Soc. Lond. (Zool.)*, **45**: 230-231.

Börner, C., 1940. *Neue Blattläuse aus Mitteleuropa.* Self-published. Naumburg, 4 p.

Börner, C., 1952. Europae centralis Aphides. *Mitt. thüring. bot. Ges., Beiheft* **3**: 64, 461, 465.

Doncaster, J. P., & Hille Ris Lambers, D., 1956. A new aphid from West Africa. *Ent. Bericht.*, **16**: 49-52.

Eastop, V. F., 1955. New East African aphids. *Ent. mon. Mag.*, **91**: 154-156.

Eastop, V. F., 1956. Thirteen aphids new to Britain and records of some other rare species. *Ent. mon. Mag.*, **92**: 274.

Eastop, V. F., 1959. New African *Sitobion. Entomologist*, **92**: 96-105.

Hille Ris Lambers, D., 1954. On some Eritrean aphids, etc. *Boll. Lab. Zool. gen. agr. Portici*, **33**: 169-171.

Hille Ris Lambers, D., 1966a. Notes on California aphids with descriptions of new genera and new species. *Hilgardia*, **37**: 610-613.

Hille Ris Lambers, D., 1966b. On alpine rose- and grass-infesting species of *Metopolophium* Mordvilko, 1914, with descriptions of two new species. *Mitt. schweiz. ent. Ges.*, **39**: 106.

Holman, J., 1959. *Aulacorthum dryopteridis* n. sp. and *Aphis torquens* n. sp., two new aphid species from Czechoslovakia. *Čas. čsl. Spol. ent.*, **56**: 222-226.

Holman, J., 1961. Descriptions of two new aphid species from Czechoslovakia. *Ibid.*, **58**: 325-329.

Kanakaraj David, S., 1956. Notes on South Indian aphids. *Indian J. Ent.*, **18**: 5-7.

Kloet, G. S., & Hincks, W. D., 1964. A Check List of British Insects, Second Edition (Revised). *Handbooks for the Identification of British Insects*, **11**, *Part 1.* Royal Entomological Society, London.

KRZYWIEC, D., 1965. A new species of *Tuberculoides* v. d. Goot from Poland. *Bull. Acad. pol. Sci. Cl II Ser. Sci. biol.*, **13**: 595-599.

MORDVILKO, A. K., 1919. Insectes Hémiptères: Aphidoidea, *in Faune de la Russie et des Pays limitrophes*, **1**, livr. 2: 272, 291-296.

MÜLLER, F. P., 1959. Zwei neue *Sitobion*-Arten aus Südafrika. *J. ent. Soc. S. Afr.*, **22**: 409-419

OSSIANNILSSON, F., 1959. Contributions to the knowledge of Swedish aphids. *K. LantbrHögsk. Annlr.*, **25**: 19-21, 407.

QUEDNAU, W., 1953. Kleine Beiträge zur Kenntnis europäischer Blattläuse. *Zool. Anz.*, **150**: 224.

QUEDNAU, W., 1954. Monographie der mitteleuropäischen Callaphididae (Zierläuse) unter besonderer Berücksichtigung des ersten Jugendstadiums. I. Die Junglarven des ersten Stadiums der mitteleuropäischen Callaphididae. *Mitt. biol. ZentAnst.Ld- u.Forstw.*, **78**: 38-41.

REMAUDIÈRE, G., 1957. Un *sitibion* nouveau de Madagascar. *Naturaliste Malgache*, **9**: 281-285.

RICHARDS, W. R., 1963. Two new Dactynotine aphids. *Can. Ent.*, **95**: 254-257.

ROBINSON, A. G., 1965. A new genus, new species and previously undescribed morphs of aphids. *Can. Ent.*, **97**: 1011-1012.

SHAW, M. W., 1964. A basic list of Scottish Aphididae. *Trans. Soc. Brit. Ent.*, **16**: 49-92.

STROYAN, H. L. G., 1957. Further Additions to the British aphid fauna. *Trans. R. ent. Soc. Lond.*, **109**: 311-360.

STROYAN, H. L. G., 1964. Notes on hitherto unrecorded or overlooked British aphid species. *Ibid.*, **116**: 29-72.

SZELEGIEWICZ, H., 1967. Zwei neue Unterarten der Gattung *Pterocomma* Buckt. *Bull. Acad. pol. Sci. Cl. II Ser. Sci. biol.*, **15**: 397-399.

TAKAHASHI, R., 1964 (posthumous). *Macrosiphum* of Japan. *Kontyu*, **32**: 353-359.

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